# SCUBA-2: An Innovative Wide-field Submillimeter Camera for the JCMT

Wayne Holland[1], M.J. MacIntosh[1], M.D. Audley[1], T. Hodson[1], B.D. Kelly[1], K.D. Irwin[2], G.C. Hilton[2], W.D. Duncan[2], A.J. Walton[3], W. Parkes[3], P.A.R. Ade[4], and M. Fich[5]

(Email: wsh@jach.hawaii.edu)

[1]U.K. Astronomy Technology Centre, Edinburgh, United Kingdom
[2]National Institute of Standards and Technology, Boulder, Colorado
[3]Scottish Microelectronics Centre, University of Edinburgh, United Kingdom
[4]Cardiff University, Cardiff, Wales, United Kingdom
[5]University of Waterloo, Canada

SCUBA-2 is a wide-field submillimeter camera for the James Clerk Maxwell telescope. Unlike many previous instruments (such as SCUBA) which have used discrete detectors, SCUBA-2 has two monolithic arrays with a total of ∼10,000 pixels. It will offer simultaneous imaging of a 50 sq-arcmin field-of-view at wavelengths of 450 and 850 microns. The absorber-coupled pixels use superconducting transition edge sensors operating at 100 mK for sky background limited performance and a SQUID time-domain multiplexer for readout. The monolithic silicon detector arrays are fabricated using silicon micromachining techniques. Once operational in 2006, SCUBA-2 will have a huge impact on the study of galaxy formation and evolution in the early Universe as well as star and planet formation in our own Galaxy. Mapping the sky 1000 times faster than SCUBA, it will can out large-area "legacy-type" surveys and act as a pathfinder for the new submillimeter interferometers such as ALMA. This paper will present an update on the current status of the project and will describe some of the technological innovations that make this unique instrument possible. The prospects for applying this technology to future missions and scaling up the array sizes still further are also discussed.



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